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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,978	11/19/2001	William E. Ford	450117-03695	9531

7590 06/10/2002

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EXAMINER

MAUPIN, CHRISTINE L

ART UNIT	PAPER NUMBER
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1637

DATE MAILED: 06/10/2002

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/988,978

Applicant(s)

FORD ET AL.

Examiner

Christine L. Maupin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 13 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: *Detailed Action*.

DETAILED ACTION

Election/Restrictions

Applicant's election of Group I (claims 1-12) without traverse of the restriction in Paper No. 4 is acknowledged.

Claims 13 and 14 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 5.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims refers to perovskites with the terms "like and "derivatives of thereof and stabilized and/or doped derivatives thereof". This renders the claim indefinite because the type of derivatives or the elements for doping or the amount of doping is not actually disclosed, thereby rendering the scope of the claim(s)

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unascertainable and not pointing out what is a necessary requirement for the invention, if require at all. This can be over come by amending the claims so that one skilled in the art would be able to determine what is latent or required. See MPEP § 2173.05(d).

Regarding claim 9, the phrase "preferably" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d). This can be overcome by amending the claim to range that is consistent with what is actually required for the claimed invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-7, 10-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Koontz et al., US patent No. 5,369,012, 29th November 1994. Here, Koontz, teaches a process for immobilization of nucleic acid molecules on a substrate where in the substrate is treated with atomic oxygen plasma prior to immobilizing the nucleic acid molecules (see abstract).

In regards to claims 1-3 Koontz teaches a process for immobilization of nucleic acid molecules on a substrate where in the substrate is treated with atomic oxygen

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plasma prior (see column 16, lines 40-46) to immobilizing the nucleic acid molecules (see column 17, lines 7-9).

In regards to claim 4, again, Koontz teaches a process for immobilization of nucleic acid molecules on a substrate where in the substrate is treated with atomic oxygen plasma prior (see column 16, lines 40-46) to immobilizing the nucleic acid molecules (see column 17, lines 7-9) where the nucleic acid is of a natural character, modified, such as substituted with functional groups, non-modified or artificially generated (see column 5, lines 36-49), further, Koontz lists a plurality of bioactive compound encompassing peptide sequences, proteins, lipids, nucleic acids, (column 2, lines 40-45) encompassing the single or double stranded nucleic acids of claims 2, 3 and 4.

In regards to claim 5 and 6, Koontz teaches that the surface of the substrate is an amorphous surface such as carbon or silicon polymers or derivative (see column 9, lines 35-47).

In regards to claim 7 Koontz expressly discloses that the radical forming conditionals by exposing an oxygen gas source may be created by a microwave discharge (see abstract and column,3 lines 11-13 and column 17, lines 20-25).

In regards to claims 10-13, the atomic oxygen plasma treatment is carrier out at 0.65 mbar, which is encompassed (see column 7, lines 56-60) and that the nucleic acid immobilized on and obtainable from the substrate in the method is specifically immobilizes a tetrapeptide sequence to the activate substrate that is suspended in a

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dilute acid solution (column 14, lines 21-31 Example 6) as well as bioactive agent suspended in a liquid of anti serum (column 15, lines 1-18 Example 9).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Koontz et al., US patent No. 6,022,902, 8th February 2000. Here, Koontz, teaches a process for immobilization of nucleic acid molecules on a substrate where in the substrate is treated with atomic oxygen plasma prior to immobilizing the nucleic acid molecules (see abstract and column 1, lines 37-40 and column 3 lines 13-18).

In regards to claims 1-3 Koontz teaches a process for immobilization of nucleic acid molecules on a substrate where in the substrate is treated with atomic oxygen plasma prior (see column 1, lines 37-40 and column 3 lines 13-18) to immobilizing the nucleic acid molecules (column 1, lines 37-40 and column 3 lines 13-18).

In regards to claim 4, again, Koontz teaches a process for immobilization of nucleic acid molecules on a substrate where in the substrate is treated with atomic oxygen plasma prior (column 1, lines 37-40 and column 3 lines 13-18) to immobilizing the nucleic acid molecules (column 1, lines 37-40 and column 3 lines 13-18) where the nucleic acid is of a natural character, modified, such as substituted with functional groups, non-modified or artificially generated (see 18, lines 50-54). Koontz also teaches

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that that articles having no functionality may be specifically treated with treated with a microwave and/or direct current discharge which will create a gas plasma (column 7, lines 36-68), with the gas comprising oxygen, ammonia or a mixture of hydrogen and nitrogen (column 7, lines 57-65) and that the functionalized surfaces by the oxygen plasma are useful as supports for solid phase organic synthesis (column 18, lines 46-48) including acting as carrier for immobilizing bioreactive components.

In regards to claim 5 and 6, Koontz teaches that the surface of the substrate is an amorphous surface such as glass or silica polymers or derivative (see column 1, lines 57-59 and column 2, lines 7-15, and column 5, lines 15-45 and lines 58-62).

In regards to claims 7 and 8, Koontz expressly discloses that the radical forming conditionals by exposing an oxygen gas source may be created by a radio frequency (RF), microwave or direct current discharge (any which will create a gas plasma discharge), laser sustained discharges, UV laser photolysis, high-powered UV/VUV lamp driven photolysis, high energy electron beams, and other high-intensity ionizing or radical forming radiation sources (column 7 lines 45-57).

In regards to claims 9 and 10, Koontz discloses that the amount of oxygen plasma and the conditions of pressure that the oxygen plasma treatment is maintained is a function of the desired temperatures such as by limiting the use of higher pressure will increase the heat capacity of the gases at atmospheric pressure which will produce high enthalpy steam which may destroy samples (column 12, lines 37-52). Koontz therefore, conducts experiments within the limitation of claims 7 and 8 with a reaction time of from

0 to 1 minute to greater than 60 minutes and working pressure of between 0.1 Torr and 10 Torr (column 12, lines 20-34).

In regards to claims 11 and 13, here Koontz uses an amorphous ultra high molecular weight polyethylene surface to functionalized for the of biomolecules molecular probes and dendrimers (see Examples 2, 3 and 4) dropwise, and then either cleaved and/or spectrophotometric measurements are made to determine the number of retained molecules. The biochemical that are attached may be used for chromatography media, media for distillation and therefore recovery, or extraction and supports for diagnostic assays (column 18, lines 50-53).

Conclusion

All claims are drawn to the same claimed invention (Group I) 1-13, have been rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine L. Maupin; whose telephone number is (703) 308-3617 and fax number is (703) 746-7641.

The examiner is normally in the office between the hours of 9:30 a.m. and 5:30 p.m., and telephone calls either in the morning or the mid-afternoon are most likely to find the examiner in the office.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion, can be reached on (703) 308-1119.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-1234.

Papers related to this application may be submitted to Technology Center 1600 by facsimile transmission via the U.S.P.T.O. Fax Center located in Crystal Mall 1. The CM1 Fax Center numbers for Technology Center 1600 are either (703) 308-4242 or (703) 308-2724. Please note that the faxing of such papers must conform with the Notice to Comply published in the Official Gazette, 1096 OG 30 (November 15, 1989).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1123.

June 3, 2002

Christine L. Maupin
Examiner
Art Unit 1637



JEFFREY FREDMAN
PRIMARY EXAMINER